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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/550,387

11/02/2005

Takamasa Fuchikami

2005-1402A

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513 7590 04/15/2008

WENDEROTH, LIND & PONACK, L.L.P.

2033 K STREET N. W.

SUITE 800

WASHINGTON, DC 20006-1021

EXAMINER

CHO, JENNIFER Y

ART UNIT

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DELIVERY MODE

04/15/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/550,387	Applicant(s) FUCHIKAMI ET AL.	
	Examiner JENNIFER Y. CHO	Art Unit 1621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 2/27/08.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 8-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Detailed Action

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 6/18/07 has been entered.

Claims 1-6, 8-11 are pending in this application. Claim 7 has been cancelled.

Claim Rejections – 35 USC 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

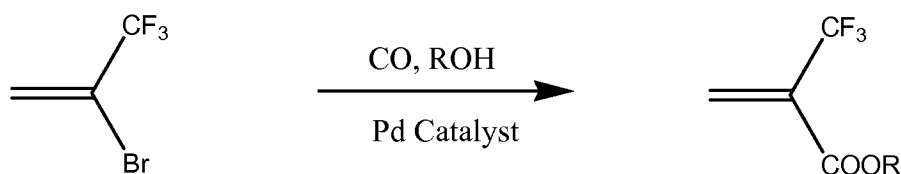
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6, 8-11 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Matteoli et al. (Journal of Molecular Catalysis A: Chemical 143, 1999, 287-295), in view of Fuchikami et al. (US 4,855,487).

Matteoli et al. teaches a process for producing a fluorine-containing acrylic acid ester (acrylic ester), in which 2-bromo-3,3,3-trifluoropropene is reacted with a straight

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aliphatic alcohol, among others, along with a palladium catalyst, carbon monoxide and two kinds of bases, diethylamine and triethylamine (page 288, scheme 1; page 292, second column, section 4.1; page 288, second column, third paragraph, second sentence; page 289, table 1).



2-Bromo-3,3,3-Trifluoropropene

Acrylic Ester

In reference to the claim limitation that one of the bases should be an amine, since Matteoli et al. states that the alkoxycarbonylation process to form the acrylic ester (page 288, second column, third paragraph, second sentence) uses the same conditions as the carbonylation process (page 292, second column, section 4.1), it is suggested that both diethylamine and triethylamine are used in the process to form the acrylic ester.

Matteoli et al. is deficient in that it does not teach that one of the bases is an inorganic base, an inorganic salt or an organic metal.

Fuchikami et al. teaches a process for preparing fluorine-containing carboxylic acid esters using a base, carbon monoxide, an alcohol and a transition metal catalyst, which includes a palladium catalyst (abstract; column 2, line 68). The bases that can be used are inorganic bases or tertiary amines, in an amount between 0.5 to 5 molar

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equivalent compared to the fluorine-containing alkyl halide starting material (column 3, lines 34-44).

The Examiner acknowledges Applicant's Declaration filed 2/1/08, which compares an alkoxycarbonylation reaction using the two bases, triethylamine and lithium carbonate, with alkoxycarbonylation reactions using one base, either tributylamine or triisopropylamine.

Applicant's Declaration has been fully considered but is not persuasive for the following reasons. The Examiner acknowledges that the preference for the target product for the fluorine-containing acrylic acid ester is drastically improved using the two bases, triethylamine and lithium carbonate. However, the Applicant has not shown a true side by side comparison. The Applicant compares a different amine, in their one-base example, instead of triethylamine, which they use for their two-base example. The Examiner suggests the Applicant show examples of reactions using either triethylamine or lithium carbonate, the same bases the Applicant's show in their two-base example. Additionally, the Applicant's vary the alcohol used for each of their examples. The Examiner suggests the Applicant confine themselves to just one alcohol for all comparative examples. The Applicant in their Declaration uses methanol, 2-propanol, 1-butanol, 2,2-dimethylpropanol and ethanol for each of their examples. It is unclear to the Examiner if the improved yields is a function of a synergism between the two bases, or is a function of the variations in alcohol or the particular base that is used. Thus, the higher yield can be a result of routine optimization by varying the alcohol or amine.

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In addition, the claims are drawn to the use of two bases generally. Applicant has provided one example of synergism using the two bases, triethylamine and lithium carbonate in their Declaration. The Examiner suggests the Applicant limit their claim language to include only those two bases, triethylamine and lithium carbonate, or provide more conclusive results that any two bases can synergistically provide unexpected results in improving the yield of the target compound.

Therefore, it would be prima facie obvious to one of ordinary skill in the art to use combination of bases, absent evidence to the contrary. Applicant has not shown unexpected results that are due to the combination of two bases. The Examiner points to the yields in Fuchikami et al. which produce up to 93% yield, using triethylamine as the base (column 8, example 8, lines 4), in comparison to Applicant's examples with lower yields (see example 1, 74.9% yield, page 12, line18).

It would also be prima facie obvious to one of ordinary skill in the art at the time of the invention, to use the inorganic base of Fuchikami et al. for the amine base of Matteoli et al. The expected result would be the effective synthesis of fluorine-containing acrylic acid esters for use in pharmaceuticals and functional polymers.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JENNIFER Y. CHO whose telephone number is (571)272-6246. The examiner can normally be reached on 8:00 AM - 5:00 PM EST Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yvonne Eyler can be reached on (571) 272-0871871. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jennifer Cho
Patent Examiner
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/SHAILENDRA - KUMAR/
Primary Examiner, Art Unit 1621